

June 22, 2009



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 10031
(ELEVENTH REVISION)

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the use of a non-DOT specification, insulated portable tank for liquefied helium. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
 - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.203(a) in that the marking requirement is waived and §§ 173.315, 173.320, 176.30 and 176.76(g)(1) in that non-DOT specification portable tanks are not authorized for cryogenic liquids, except as specified herein.
5. BASIS: This special permit is based on the Pipeline and Hazardous Materials Safety Administration's (PHMSA) editorial review under § 107.121 initiated on December 4, 2008.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Hazardous Materials Description | | | |
|--|---------------------------|-----------------------|---------------|
| Proper Shipping Name | Hazard Class/ Division | Identification Number | Packing Group |
| Helium, refrigerated liquid (<i>cryogenic liquid</i>) | 2.2 | UN1963 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is an insulated non-DOT specification portable tank designed and constructed in accordance with Section VIII of the ASME Code and subparagraph 7.a. of this special permit. The portable tank is enclosed in an ISO type frame. The portable tank is vacuum-insulated with a supplemental liquid nitrogen shield. Design pressure is 81 PSIG (MAWP = 64 PSIG) for the internal tank, and 23 PSIG (MAWP = 6 PSIG) for the liquid nitrogen tank. Design temperature is -452 °F for the inner tank and any part, valve or fitting that may come in contact with the helium lading; and -320 °F, for the liquid nitrogen tank and any part, valve or fitting that may come in contact with liquid nitrogen. Nominal water capacity is 10,812 (U.S.) gallons for the inner tank and 385 (U.S.) gallons for the nitrogen tank. Tank material is SA 240 Type 304 stainless steel for the inner tank and the nitrogen tank; and SA 516 Gr.70 for the outer jacket.

Each portable tank must conform to Universal Cryogenics Corporation drawings cited below, and calculations and specifications on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA).

Q275-A-06 Rev A dated September 16, 1987,
Q275-A 51 Rev 0 dated September 9, 1987,
Q275-A-55 Rev A dated September 21, 1987,
Q275-B-01 Rev A dated September 11, 1987,
Q275-J-03 Rev 0 dated September 9, 1987,
Q275-L-05 Rev A dated September 10, 1987.

In addition, each tank must conform with § 178.338, except as follows:

(1) Impact testing is not required for stainless steels used for lading warmer than -425°F.

(2) § 178.338-10 does not apply.

(3) The portable tank need not conform with § 178.338-13(b). Lifting lugs, framework and any anchoring to the inner tank, the nitrogen shield tank or the tank jacket must conform with § 178.338-13(a). Portable tanks that meet the definition of "container" must meet the requirements of 49 CFR Parts 450 thru 453, and each design must be qualified in accordance with § 178.270-13(c).

b. TESTING - Each portable tank must be reinspected and retested once every 5 years in accordance with § 180.605, as prescribed for DOT Specification 51 portable tanks, at a pressure (in PSIG) of 14.7 plus one and one-fourth times the sum of the design pressure plus the static head.

c. OPERATIONAL CONTROLS -

(1) Each portable tank must be plainly marked "DOT-SP 10031" on both sides near the middle, in letters at least two inches high on a contrasting background.

(2) Each portable tank must be prepared and shipped as required in § 173.318, as applicable for the lading.

(3) Shipments by cargo vessel must conform with the following:

(i) The package must conform with § 176.76(g).

(ii) The legend "One-Way Travel Time_____Hours" or "OWTT_____Hours" must be marked on the shipping paper and on the dangerous cargo manifest immediately after the container description. The OWTT is determined by the formula:

OWTT = MRHT - 24 hours.

(iii) A written record of the portable tank's pressure and ambient (outside) temperature at the following times must be prepared for each shipment.

- (a) At the start of each trip;
- (b) Immediately before and after any manual venting;
- (c) At least every 24 hours; and
- (d) At the destination point.

(4) Any lading pressure control valve or road relief valve set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel.

(5) No person may transport or offer for transportation a charged portable tank unless the pressure of the lading is equal to or less than that used to determine the marked rated holding time and the OWTT is equal to or greater than the elapsed time between the start and termination of travel.

(6) The actual holding time for each tank must be determined after each shipment. If it is determined that the actual holding time is less than 90 percent of the MRHT of the tank, the tank may not be refilled until it is restored to its MRHT or the tank is re-marked with the holding time determined by this special permit.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.

- b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.
 - c. MARKING - "DOT-SP 10031" must replace the mark "MC 338".
 - d. No new construction of the portable tanks manufactured under the terms of this special permit is authorized after January 31, 1995.
 - e. Shippers using the packaging covered by this special permit must comply with all provisions of this special permit, and all other applicable requirements contained in 49 CFR Parts 100-180.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.
10. MODAL REQUIREMENTS: No additional requirements other than those in the HMR.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Theodore L. Willke
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.
PO: KFW:AM